The Development of ICT Accessibility for Persons with Disabilities in China

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中国残疾人联合会
China Disabled Persons' Federation

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I. The Development of ICT Accessibility Being Regarded as an Important Issue in Building a Harmonious Society

- According to result of the second national sampling survey on disability conducted in 2006, there are about 82,96 million PWDs in China, accounting for 6.34% of the total population

- Among them:

  12.33 million persons with visual impairment (14.86%);

  20.04 million persons with hearing impairment (24.16%)

  1.27 million persons with speech disabilities (1.53%).

- PWDs are increasingly in need for ICT accessibility

II. Efforts by the Chinese Government in Policy-making and in Building Social Environment for the Development of ICT Accessibility

- The Chinese government and all circles of the society have been always attaching great importance to the work on disability.
- A number of policies have been implemented by the Chinese government to improve ICT accessibility service for the disabled and those with special needs, so as to lessen the negative impact of digital barrier.

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1. Legislations and guidelines promulgated by the central government

- The revised *Law on the Protection of PWDs* refers to ICT accessibility as one of the important rights of PWDs, which provides a legal ground for the promotion of ICT accessibility. It says：

——"The country should adopt measures to create conditions for the ICT accessibility for PWDs; government agencies at all levels should adopt measures to make it convenient for PWDs to acquire public information; the country and the society should develop information and communication technologies and products suitable for use by PWDs; public services should create conditions to provide information and communication service with voice and character attentions, sign language, Braille, and should provide priority service and assistive service to PWDs."

全国人民代表大会常务委员会公报版

（最新修订本）

中华人民共和国
残疾人保障法

中国民主法制出版社

1. Legislations and guidelines promulgated by the central government (continued)

- ***The 11th Working Program on Disability in China (2006-2010) mentions:***

   ——**Strengthening the establishment of accessible information system for the work on disability is a key component of the country's administrative information system, and is an important measure of modernized management and sustained development for the work on disability in China.**

中国残疾人事业
"十一五" 发展纲要与配套实施方案

華夏出版社

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1. Legislations and guidelines promulgated by the central government (continued)

- **In March 2008, China's State Council and CCP Central Committee jointly released *Policy Guidelines on Further Promoting the Work on Disability in China*, which declares:**

—— **The country encourages and supports the study and research in this area, requiring public facilities to provide accessible services such as speech and character attention, Braille and sign language. It also requires the films and television programs to match captions on the screen, and requires internet and electronic information & communication products to be made more convenient for PWDs.**

中共中央文件

中发〔2008〕7号

—— ★ ——

中共中央 国务院
关于促进残疾人事业发展的意见

（2008 年 3 月 28 日）

关心残疾人，是社会文明进步的重要标志。残疾人事业是中国特色社会主义事业的重要组成部分。为贯彻落实党的十七大精神，进一步促进残疾人事业发展，现提出以下意见。

一、增强促进残疾人事业发展的责任感和使命感

（一）认清残疾人事业发展的形势。残疾人是一个数量众多、特性突出、特别需要帮助的社会群体。我国有

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1. Legislations and guidelines promulgated by the central government (continued)

- *National Action Plan on Human Rights 2009-2010* **released by** the News Office of the State Council in April 2009, which mentions:

  —— The plan includes a program of developing ICT accessibility in 100 cities in China. The program requires the pilot cities to make information accessible for PWDs by using assistive or substitute techniques such as Braille, sign language, captions and special communication devices. It also requires broadcasting and TV stations to initiate programs for PWDs and speed up the work of adding captions to movies and TV programs.

1. Legislations and guidelines promulgated by the central government (continued)

- **In March 2010, the State Council approved and released the *Guidelines on Speeding up the Establishment of Social Security System and Service System for PWDs*, which calls for:**

  ——Relevant agencies should include ICT accessibility into the development of their information system, to make technical criteria for ICT accessibility, and to encourage the research and development of practical technologies of accessible internet, mobiles and computers. According to the guidelines, the publicity of government administrative affairs should take measures of ICT accessibility. Public service facilities should be accessible with voice or character attentions, Braille and sign language, and digitalization of books and AV resources should also have ICT accessibility.

0008043

国务院办公厅文件

国办发〔2010〕19 号

国务院办公厅转发中国残联等部门和单位
关于加快推进残疾人社会保障体系和
服务体系建设指导意见的通知

各省、自治区、直辖市人民政府，国务院各部委、各直属
机构：

中国残联、教育部、民政部、人力资源社会保障部、
卫生部、中央宣传部、发展改革委、科技部、司法部、财
政部、住房城乡建设部、交通运输部、工业和信息化部、
文化部、人民银行、扶贫办《关于加快推进残疾人社会保
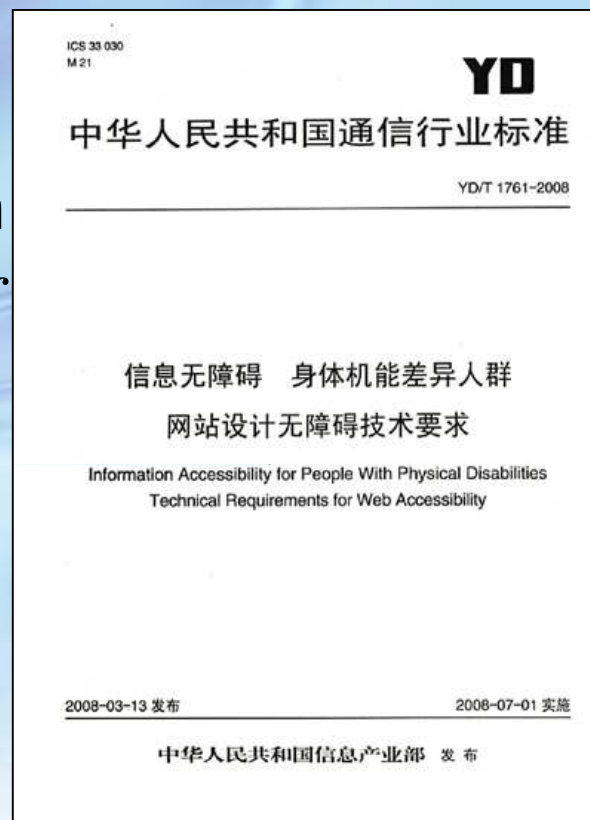障体系和服务体系建设的指导意见》已经国务院同意，现

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2. Speeding up the work on making standards for ICT accessibility

- **Standards made in the field of telecommunication**
  —*Technical Requirements of Accessible Website Design for the physically differently-abled persons*
  — *Methods for Testing and Rating Accessible Websites for the physically differently-abled persons*

3. Platform of basic information being built for providing service to PWDs

- **The basic information database of PWDs was put into use in early 2009. By march 2010, the management system of basic information database for the population of PWDs is used by more than 2800 counties, and the data of 13 million PWDs were entered into the database when they change their disability ID cards from the first generation to the second generation.**

- **Establishment of the databases is a strong support to the work on disability in every aspects. According to result of analysis of the data, the population, categories and basic needs of PWDs can be accurately calculated and customized service can be provided accordingly.**

4. Joint Action Plans on ICT Accessibility for PWDs being Initiated

- **In 2008, the Ministry of Science and Technology initiated a Project entitled "*Key Technology Propping System and Pilot Application of ICT Accessibility for PWDs*"**

- **Total investment: 150 million**

- **Directions of research: one support platform, two key technologies, 3 kinds of pilot use**

- **Member institutions: more than 30**

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4. Joint Action Plans on ICT Accessibility for PWDs being Initiated (continued)

- **In January 2009, China Disabled Persons' Federation and the Ministry of Science and Technology officially signed an *Agreement of Joint Action Plan on ICT Accessibility for PWDs*,**

- The action plan is aimed at meeting the need by PWDs, the whole society and government policy-makers, to build a relatively perfect service system for PWDs' accessible information. The action plan is based on academic research, following the principles of a criteria system of ICT accessibility, supported by key technologies of commonness, and providing service from a core service platform.

5. The Establishment of Technological Research Center on ICT Accessibility for PWDs.

- **China Disabled Persons' Federation and Zhejiang University jointly established the Technological Research Center on ICT Accessibility for PWDs.**

- **The center is intended to use resources of both parties to study technical issues relating to ICT accessibility and to provide technical support to the establishment of information system for further promoting the work on disability in China.**

6. ICT Accessibility Forum

- **Since the year of 2004, the Forum of ICT Accessibility was held annually, jointly hosted by the Ministry of Industry and Information Technology, the China Disabled Persons' Federation and the China Internet Association. By the year 2009, we held We held 6 forums, in which key issues such as technical exchanges, exhibition of achievements, social influence.**

III. Major Achievements in ICT Accessibility Research in China

- **With the progress achieved in promoting ICT accessibility in our country, we will invest more resource in the research and development of key technologies of ICT accessibility, trying to catch up with the advancement in ICT accessibility abroad, so as to realize the final objective of equal participation in social life for PWDs and promoting the development of building a harmonious society.**

1. Development in Research and Application of Assistive Technology in Acquiring Information

- ## Cultural life

- ## 1、 Screen Reading Software for Persons with Visual Impairment

- Using clear voice of indication for user to operate a computer. The tool cannot only make the blind and persons with visual impairment use computers independently, but also changed their ways of studying, working and thinking.
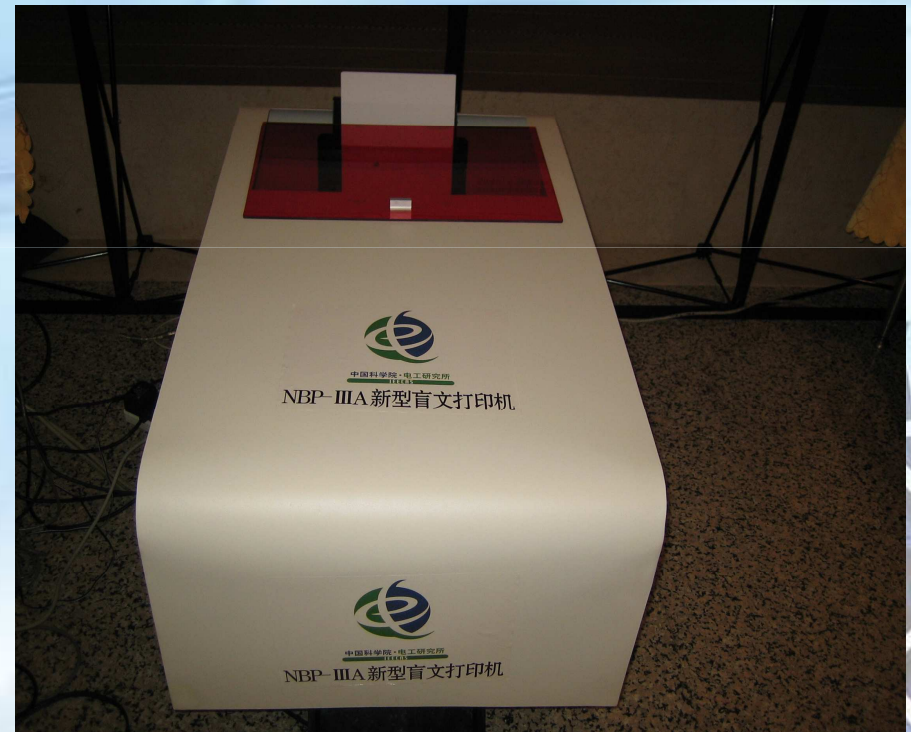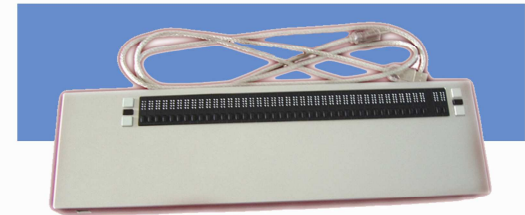

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1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **2、 Fast Braille Printer.**

—The printer uses Braille printing system plus ultraviolet hardening glue as printing medium and ordinary paper as base material, changing ultraviolet hardened glue dots as Braille dots, to form a new type of Braille product.

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **3、Digital TV System for displaying Chinese Sign Language.**

  —The automatic video displaying system can display 3-D sign language with a virtual human figure which can be integrated into TV programs, realize synchronous display of sign language and TV programs.

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1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **4、 Electronic Braille Displayer and Personal Digital Aid (PDA)**

  —These devices are developed for persons with visual impairment. The multi-language Braille electronic products are produced with our own intellectual property.

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **5、 Bluetooth Wireless Screen-Reading Device.**

  —Through a bluetooth earphone, persons with visual impairment will be able to operate a computer, reading files, listening to music, surfing among webpages and acquiring information from internet.
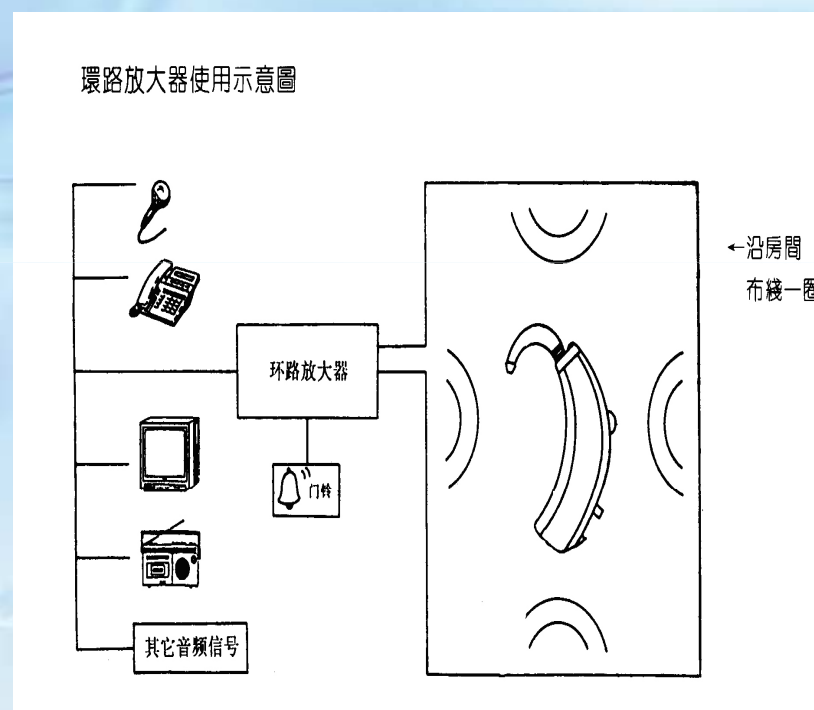
1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **6、Supporting System for Hearing Compensation.**

   —It is a device providing service for persons with hearing impairment who are equipped with hearing aiding devices (including hearing aids and implanted cochlea), helping them to shield noises and obtain a normal hearing environment like others.
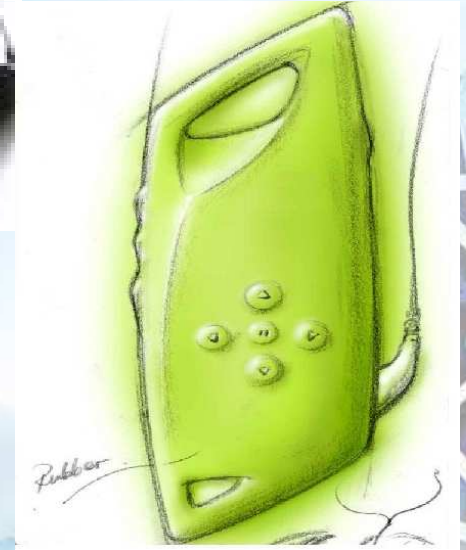
環路放大器使用示意圖

←沿房間
布綫一圈

環路放大器

門鈴

其它音頻信號

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **7、Network Sound-Searching Machine.**

  — Persons with visual impairment and aged people can use the machine to listen to real-time broadcast programs from portal websites, including education and recreation programs like songs and music etc..

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **Household devices**
- **1、Portable blind guiding instrument**

—The instrument integrates biological sonar technology with existing GPS system, in combination with resources in the communities, providing remote positioning service for the blind for going outside, short distance barrier allert and emergency support.

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1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **2、 Household smart cleaning robot**

  — The device is designed according to the need of PWDs and the elderly, which has functions such as automatic recharge, automatic emptying of litter, automatic detection of cleanliness, speed control, automatic detection of harmful gas, and evading barriers while working.

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **3、 Smart blind walking stick**

— To help the blind in going outside, a walking stick is designed to give a sound signal indicating distance of objects. It works with a high frequency signal and narrow beam, and the signal is changed into sound indication for the blind people.

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1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **4、Smart bathing machine**

  — To facilitate PWDs in taking bath, the smart bathing machine has functions of automatic washing, dirt collection and drying. It can sop up water while showering, and non-touching massage with blowing air, so as to help with rehabilitation.

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- ## Rehabilitation
- ## 1、Smart Excretion collector

 — The device is designed to solve the problem of excretion for persons with severe physical disabilities always lying in bed and reduce the labor and psychological burden of care givers.

1. Development in Research and Application of Assistive Technology in Acquiring Information (continued)

- **2、Portable smart walking aid for the hemiplegia**

   — The device has treatment and rehabilitation effect for patients of physical impairment with lower limbs , usually caused by stroke, brain or spinal cord injuries, cerebral palsy and hyperkinesia.

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2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals

- **Joint Action for Accessible Websites of 2008 Beijing Olympic and Paralympic Games**

   —— A total of 9 major websites were made accessible to PWDs during the summer of 2008, including the official website of the 29th Olympic Games and the website of CDPF, making them accessible for the blind, persons with visual impairment and for aged people.

2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals (continued)

- **The website of China Disabled Persons' Federation (CDPF) took the lead in becoming accessible for PWDs.**

- Three relatively mature technologies are used to make it accessible. The CDPF website is the first government portal realizing website accessibility with different technologies.

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2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals (continued)

- The website of Chinese Government set up a special channel entitled "Service for PWDs" to strengthen informa service for PWDs through internet.

- The channel is intended to make it more convenient for PWDs to find the information they need.

- This marks a new start in pushing accessible techniques being applied by government portals.

2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals (continued)

- **China Disabled Persons Federation and China National Library jointly launched the website "China Digital Library for Person with Visual Impairment", indicating that ICT accessibility is taking effect in the field of cultural life for PWDs.**

  ——International standards, different kinds of mature accessible techniques and assistive tools are applied in the construction of the digital library website, supplying a gap of national level digital library for the blind.

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2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals (continued)

- **A comprehensive service platform has been set up for PWDs to provide service through accessible network, service provided on the platform includes:**

- remote training of psychological consultants on disability;

- remote training of disabled hi-tech talents;

- remote training of computer technology for the blind

- evaluation of professional skills for PWDs;

- remote medication and rehabilitation service for those with cognitive impairment after brain injuries;

- a remote vocational training platform is now being built to conduct vocational skills training for people with different types of disabilities.

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2. Developing Accessible Internet Information Service and Pushing Forward Information Accessibility on Major Portals (continued)

- The IBM Company provided us with great support in promoting the ICT accessibility concept and in the construction of information accessible websites.

- IBM has not only participated in China's ICT accessibility Forum and standard–making of ICT accessibility, but also collaborated with relevant technical agencies in China to push forward the accessibility of government portals in China, and provided assistive tools to help the blind and persons with visual impairment in surfing internet.

- IBM also join hands with CDPF in technical staff training for provincial level disabled persons' federations.

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3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society

- **During the 2008 Beijing Olympic Games and the Paralympic Games, various kinds of information-accessible products and service were offered to persons with visual and hearing impairment.**

3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- **The country attaches importance to improving the cultural life of the blind.**

  — In February of 2010, Mr. Li Changchun, member of Standing Committee of the Politburo of CCP, inspoected China Braille Publishing House.

  —He emphasized the strengthening of research, development and replication of ICT tools for the blind so as to meet their requirement in enjoying the great achievements in ICT.

XINHUANET

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3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- **In the 2008 International Welfare Expo in China, Mr. Hui Laingyu, vice premier of the State Council, visited the exhibition of ICT accessibility section and highly praised the development direction as well as the concept of service.**

3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- **In the China International Industrial Fair, Information Accessibility Section for PWDs became one of the high-lights of Technology-empowered Olympics.**

- **Mr. Wan Gang, Minister of Technology visited the section and experienced products and service of the Section.**
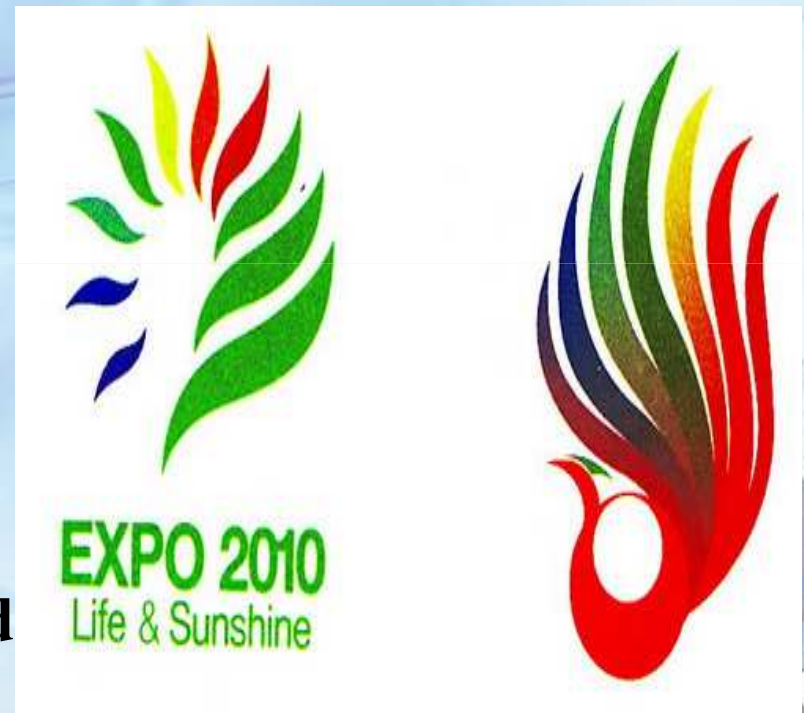
3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- Chinese government will set up "Life & Sunshine" Pavilion in Shanghai 2010 World Expo, a pavilion exhibiting our work on disability.

- It is the very first in the history that a pavilion on disability is set up in a World Expo.

- In the pavilion, new technologies of ICT accessibility will exhibited to and experienced by audience.

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3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- The Government of Shanghai initiated a 600-day Action Plan to welcome the 2010 World Expo. The plan includes making modifications of information accessibility to government portal websites, such as the website of Human Resources and Social Security, website of Civil Affairs, website of the Justice Bureau, and Shanghai Disabled Persons Federation, making it convenient for PWDs to acquire information from internet.

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3. ICT Accessibility Being Applied in Major Events, Bringing along the Development of ICT Accessibility in the Whole Society (continued)

- The 16th Asian Games and the 1st Asian Paralympic Games will be held in Guangzhou, China in 2010. The official website of the Games will be made accessible for PWDs for obtaining information.

IV. Future Development

Chinese government will commit itself to establishing an accessible environment for PWDs, enhance the implementation of policies concerned, promote the formulation of technical standard and criteria, encourage the research and development of hi-tech assistive products, replicate all over the country the demonstrative application, adopt international advanced experiences and put the information accessibility in China onto a fast growing track.

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Thank You!

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